

Appl. No. 09/889, 253  
Atty. Docket No. CM2006XM  
Amdt. dated 03/19/2004  
Reply to Office Action of 11/19/2003  
Customer No. 27752

#### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A detergent composition comprising a detergent ingredient, a pectate lyase enzyme and bleach system selected from the group consisting of a metal bleach catalyst; a combination of a peroxygen source and a bleach booster selected from the group consisting of zwitterionic imines, anionic imine polyions having a net negative charge of from -1 to -3, and mixtures thereof; a diacyl peroxide and mixtures thereof wherein said pectate lyase enzyme is selected from the group consisting of: a pectate lyase which is a polypeptide produced by *Bacillus licheniformis* or ~~ATCC 14580~~; a pectate lyase which is a polypeptide produced by *Bacillus halodurans*; a pectate lyase having an optimum activity at a pH of greater than about 7.0 and derived from: *Streptomyces fradiae*, *Streptomyces nitrosporeus*, *Erwinia carotovora*, *Bacillus sphaeroides*, *Thermomonospora fusca*, *Pseudomonas solanacearum*, *Bacteroides thetaiotaomicron*, *Fusarium solani*, *Xanthomonas campestris*, *Bacillus licheniformis* and mixtures thereof; and combinations thereof.
2. (Previously presented) A detergent composition according to claim 1 wherein the metal bleach catalyst is selected from :
  - (a) the [Mn(Bcyclam)Cl<sub>2</sub>] catalyst;
  - (b) the cobalt catalyst having the formula : Co[(NH<sub>3</sub>)<sub>n</sub>M<sub>m</sub>B<sub>b</sub>T<sub>t</sub>Q<sub>q</sub>P<sub>p</sub>]Y<sub>y</sub> wherein Cobalt is in the +3 oxidation from, n is an integer from 0 to 5; M represents a monodentate ligand; m is an integer from 0-5; B represents a bidentate ligant; b is an integer from 0-2; T represents a tridentate ligand; t is 0 or 1; Q is a tetradentate ligand; q is 0 or 1; P is an pentadentate ligand; p is 0 or 1 and n+m+2b+3t+4q+5p=6; Y is one or more appropriately selected counteranions present in a number y, where y is an integer from 1-3;
  - (c) the cobalt catalyst having the formula [Co(NH<sub>3</sub>)<sub>5</sub>M]T<sub>y</sub> wherein cobalt is in the +3 oxidation statte; M is a carboxylate-containing ligand having the fromula RC(O)O<sup>-</sup>; and T is one or more counteranions present in a number y, where y is an interger to obtain a charge-balanced salt;and mixtures thereof.
3. (Previously presented) A detergent composition according to claim 2 comprising said metal bleach catalyst and further comprising a peroxygen source, wherein said peroxygen source

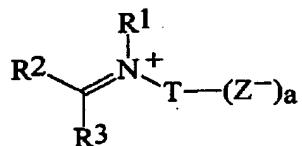
Appl. No. 09/889, 253  
Atty. Docket No: CM2006XM  
Amdt. dated 03/19/2004  
Reply to Office Action of 11/19/2003  
Customer No. 27752

is selected from the group consisting of a hydrogen peroxide source, a peroxyacid bleach precursor compound, and mixtures thereof.

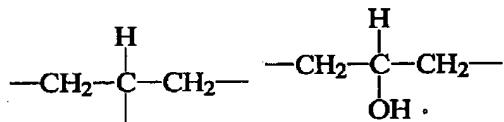
4. (Previously presented) A composition according to claim 3 wherein the metal bleach catalyst is present in an amount of from 1ppb to 10% by weight of total composition.
5. (Previously presented) A detergent composition according to claim 1 wherein said diacyl peroxide is selected from the group consisting of dibenzoyl peroxide, benzoyl glutaryl peroxide, benzoyl succinyl peroxide, di(2-methyl benzoyl) peroxide, and mixtures thereof.
6. (Original) A detergent composition according to claim 5 wherein said diacyl peroxide is dibenzoyl peroxide.
7. (Previously presented) A detergent composition according to claim 1 wherein said diacyl peroxide is comprised in a particle; said particle comprising from 1-80% by weight of said particle of diacyl peroxide, from 0.01-95% by weight of said particle of a water soluble stabilizing additive.
8. (Currently amended) A detergent composition according to claim 7 wherein said stabilizing additive is selected from the group consisting of alkali metal sulfates and citrates, ethoxylated C16-20 alcohols, polyethylene glycols melting above 100°F, maltodextrins, polyacrylate polymers and copolymers of molecular weight between 1,000 and 80,000, ethylene diamine tetra-acetates, ethylene diamine disuccinates and mixtures thereof.
9. (Previously presented) A detergent composition according to claim 4 wherein said diacyl peroxide is dilauroyl peroxide.
10. (Previously presented) A detergent composition according to claim 1 wherein said diacyl peroxide is comprised at a level of from about 0.01% to about 20% by weight of the composition.
11. (Previously presented) A detergent composition according to claim 1 wherein the diacyl peroxide is incorporated into a particulate and said particle is comprised at a level of from about 0.1% to about 30% of the total composition.

Appl. No. 09/889, 253  
 Atty. Docket No. CM2006XM  
 Amdt. dated 03/19/2004  
 Reply to Office Action of 11/19/2003  
 Customer No. 27752

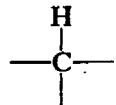
12. (Previously presented) A detergent composition according to claim 1 wherein said bleach booster is selected from the group consisting of aryliminium zwitterions, aryliminium polyions having a net negative charge of from -1 to -3; and mixtures thereof.
13. (Original) A detergent composition according to claim 12 wherein said bleach booster has the formula:



wherein  $\text{R}^1\text{-R}^3$  are moieties having a total charge of from about 0 to about -1;  $\text{R}^1$  and  $\text{R}^2$  form part of a common ring; T is selected from the group consisting of:  $-(\text{CH}_2)_b-$  wherein b is from about 1 to about 8,  $-\text{CH}(\text{R}^5)-$  wherein  $\text{R}^5$  is  $\text{C}_1\text{-C}_8$  alkyl,  $-\text{CH}_2(\text{C}_6\text{H}_4)-$ ,

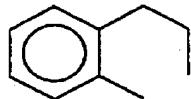


and  $-(\text{CH}_2)_d(\text{E})(\text{CH}_2)_f-$  wherein d is from 2 to 8, f is from 1 to 3 and E is  $-\text{C}(\text{O})\text{O}-$ ,  $-\text{C}(\text{O})\text{NR}^6$  or :



- wherein  $\text{R}^6$  is H or  $\text{C}_1\text{-C}_4$  alkyl; Z is covalently bonded to T and Z is selected from the group consisting of  $-\text{CO}_2^-$ ,  $-\text{SO}_3^-$  and  $-\text{OSO}_3^-$  and a is either 1 or 2.

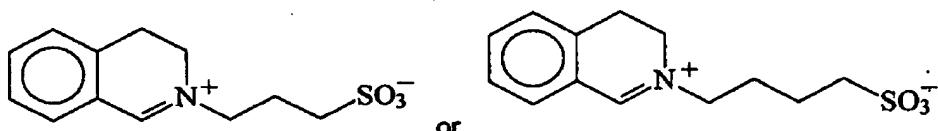
14. (Previously presented) A detergent composition according to claim 13 wherein  $\text{R}^1$  and  $\text{R}^2$  together form the non-charged moiety:



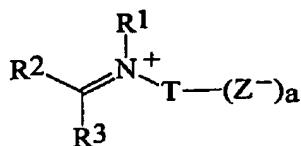
Appl. No. 09/889, 253  
 Atty. Docket No. CM2006XM  
 Amdt. dated 03/19/2004  
 Reply to Office Action of 11/19/2003  
 Customer No. 27752

15. (Previously presented) A detergent composition according to claim 14 wherein said bleach booster is an aryliminium zwitterion and R<sup>3</sup> is H, T is -(CH<sub>2</sub>)<sub>b</sub>- or -CH<sub>2</sub>(C<sub>6</sub>H<sub>4</sub>)-, Z is -SO<sub>3</sub><sup>-</sup>, a is 1 and b is from 2 to 4.

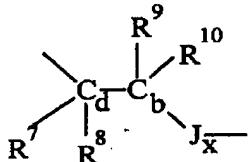
16. (Previously presented) A detergent composition according to claim 15 wherein said bleach booster is an aryliminium zwitterion having the formula:



17. (Original) A detergent composition according to claim 12 wherein said bleach booster has the following formula:



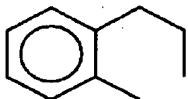
wherein R<sup>1</sup> - R<sup>3</sup> is hydrogen or an unsubstituted or substituted radical selected from the group consisting of phenyl, aryl, heterocyclic ring, alkyl and cycloalkyl radicals; R<sup>1</sup> and R<sup>2</sup> form part of a common ring; T has the formula:



wherein x is equal to 0 or 1; J, when present, is selected from the group consisting of -CR<sup>11</sup>R<sup>12</sup>-, -CR<sup>11</sup>R<sup>12</sup>CR<sup>13</sup>R<sup>14</sup>-, and -CR<sup>11</sup>R<sup>12</sup>CR<sup>13</sup>R<sup>14</sup>CR<sup>15</sup>R<sup>16</sup>-; R<sup>7</sup>-R<sup>16</sup> are selected from the group consisting of H, linear or branched C<sub>1</sub>-C<sub>18</sub> substituted or unsubstituted alkyl, alkylene, oxyalkylene, aryl, substituted aryl, substituted arylcarbonyl groups, and amide groups; provided that at least one of R<sup>7</sup>-R<sup>8</sup> must be H or methyl, and that when neither R<sup>9</sup> nor R<sup>10</sup> is H, one of R<sup>7</sup>-R<sup>8</sup> must be H; Z is covalently bonded to J<sub>x</sub> when x is 1 and to C<sub>b</sub> when x is 0; and Z is selected from the group consisting of -CO<sub>2</sub><sup>-</sup>, -SO<sub>3</sub><sup>-</sup> and -OSO<sub>3</sub><sup>-</sup>, and a is 1.

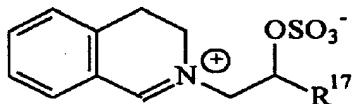
Appl. No. 09/889, 253  
 Atty. Docket No. CM2006XM  
 Amdt. dated 03/19/2004  
 Reply to Office Action of 11/19/2003  
 Customer No. 27752

18. (Original) A detergent composition according to claim 17 wherein said bleach booster wherein R<sub>1</sub> and R<sub>2</sub> are defined in its formula as R<sub>1</sub> and R<sub>2</sub> together form the non-charged moiety:



19. (Previously presented) A detergent composition according to claim 18 wherein said bleach booster is an aryliminium zwitterion and R<sup>3</sup> is H, Z is -OSO<sub>3</sub><sup>-</sup>, a is 1.

20. (Previously presented) A detergent composition according to claim 19 wherein said bleach booster is an aryliminium zwitterion having the formula:



where R<sup>17</sup> is selected from the group consisting of H and linear or branched C<sub>1</sub>-C<sub>18</sub> substituted or unsubstituted alkyl.

21. (Previously presented) A detergent composition according to claim 1 wherein said bleach booster is comprised at a level of from 0.01% to 10% by weight of the total composition.

22. (Previously presented) A detergent composition according to claim 21 wherein said peroxygen source is comprised at a level of from 0.01% to 60% by weight of the total composition.

23. (Previously presented) A detergent composition according to claim 22 wherein said peroxygen source comprises a preformed peracid compound selected from the group consisting of percarboxylic acids and salts, percarbonic acids and salts, perimidic acids and salts, peroxyomonosulfuric acids and salts, and mixtures thereof; a hydrogen peroxide source, a bleach activator and mixtures thereof.

Appl. No. 09/889, 253  
Atty. Docket No. CM2006XM  
Amdt. dated 03/19/2004  
Reply to Office Action of 11/19/2003  
Customer No. 27752

24. (Previously presented) A detergent composition according to claim 23 wherein said hydrogen peroxide source is selected from the group consisting of perborate compounds, percarbonate compounds, perphosphate compounds and mixtures thereof.
25. (Previously presented) A detergent composition according to claim 23 wherein said bleach activator is selected from the group consisting of tetraacetylenediamine, sodium decanoxyloxybenzene sulfonate, sodium nonanoyloxybenzene sulfonate, sodium octanoyloxybenzene sulfonate, (6-octanamido-caproyl)oxybenzenesulfonate, (6-nonanamido-caproyl)oxybenzenesulfonate, (6-decanamido caproyl)oxybenzenesulfonate, and mixtures thereof.
26. (Previously presented) A detergent composition according to claim 1 wherein said pectate lyase is present at a level of from 0.0001% to 2% pure enzyme by weight of total composition.
27. (Previously presented) A detergent composition according to claim 1 further comprising a pectin lyase.
28. (Previously presented) A method of using a composition according to claim 1 for the removal of plant-, dirt-based stains, highly coloured food soils/stains and body soils comprising the step of contacting a fabric in need of treatment with the composition of claim 1.
29. (Previously presented) A method of using a composition according to claim 1 for superior fabric whiteness maintenance comprising the step of contacting a fabric need of treatment with the composition of claim 1.
30. (Currently amended) A method of using a composition according to claim 11 for effective highly coloured stains and soils removal on plasticware, preventing staining and discolouration of the dishware by highly coloured components comprising the step of contacting a fabric need of treatment with the composition of claim [[1]] 11.